

REMARKS

In further support of the amendment to the specification and claims presented, Applicants submits the following remarks.

I. Prosecution History and Current Status of Claims

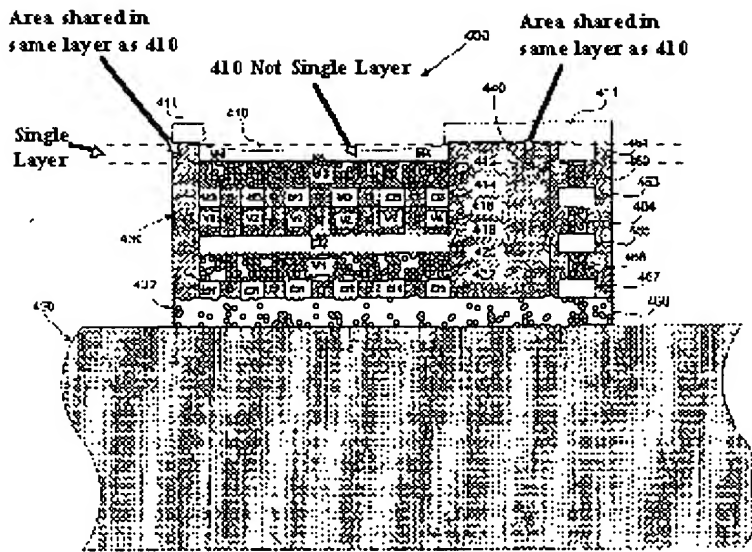
Claims 1-24 were originally presented for examination. In the first Office Action: Claims 2 and 18 were rejected by the Examiner under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Claims 1, 8-9 and 11-12 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,417,088 to Ho et al. Claims 3-7 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ho et al (U.S. Patent No. 6,417,088) in view of Zhao (U.S. Patent No. 6,198,170). In response to the first Office Action, Applicant amended claims 1-24, and added new claims 25-28. The Examiner issued a Final Office Action dated January 29, 2003 rejecting claims 1-12 and 25-28. In the Final Office Action, the Examiner specifically rejected claims 1, 3-4, 8, and 11 under 35 U.S.C. § 102(e) as being anticipated by Zhao. The Examiner also rejected claims 2, 5-7, 9-10 and 25-28 under 35 U.S.C. § 103(a) as being unpatentable over Zhao in view of Ho. In response to the Final Office Action, the Applicants presented arguments leading to a request for the withdrawal of the aforementioned rejections. The Examiner thereafter responded with an Advisory Action dated March 18, 2003 indicating that claims 1-12 and 25-28 continue to stand rejected. In response to the Advisory Office Action, Applicants have filed a Request for Continued Examination concurrently with the present Amendment as a submission required under 37 CFR 1.114.

II. New Claims

Applicants have cancelled Claims 1-12 and 25-28, and submit new claims 29-39 for examination. No new matter has been added with the present amendment. Support for new claims can be found throughout the specification. The amendments to the specification and new claims submitted by Applicants further distinguish the invention from the prior art.

The prior art cited by the Examiner in the previous Office Actions does not disclose, teach or suggest a method for forming a wiring bond pad utilized in wire bonding operations on an integrated circuit device, wherein the method includes the steps of providing a substrate; thereafter configuring the substrate to comprise a wiring bond pad to comprise a single metal layer, wherein the single metal layer does not share the single metal layer with any other material; thereafter positioning at least one integrated circuit device below the wiring bond pad to thereby conserve integrated circuit space and improve wiring bond pad efficiency as a result of configuring the wiring bond pad to comprise a single metal layer; thereafter locating a buffer and bonding layer immediately above the single metal layer; thereafter locating the single metal layer above a plurality of intermetal dielectric layers; and thereafter locating the at least one integrated circuit device below the plurality of intermetal dielectric layers, wherein the single metal layer comprises a metal-8 layer.

The bonding pad 410 of Zhao, for example, cited by the Examiner in prior Office Actions, does not constitute a ***single metal layer***, specifically a single metal layer that does not share the single metal layer with any other material. As Fig. 4 of Zhao demonstrates, a portion of structure 430 and a portion of the area below structure 411 of Zhao are ***shared*** by bonding pad 410 at the same level. Thus, bonding pad 410 does not comprise a single metal layer, but is merely one layer of several different structures at the same level. Fig. 4 of Zhao is illustrated below:



Thus, it is clear from Fig. 4 that bonding pad 410 is not composed of a single layer but is located in a layer in which other structures are shared within the same layer. This single layer is located between the dashed lines indicated above. Bonding pad 410 does not comprise a “single metal layer” 410 because although bonding pad 410 is formed from an M4 metal, this metal does not encompass the *entire* length and gap between the dashed lines indicated above, but instead shares portions of other structures within the same layer.

Although bonding pad 410 is described at column 10, line 37 as constituting an M4 layer, the Applicants, as indicated at paragraph 0028 of their specification, refer to a “single layer Cu metal-8 bond pad,” which is different from an M4 layer. Although column 10, lines 37-38 indicate that M4 is the same layer in which bonding pad 410 is located, it is clear from Fig. 4 of Zhao that the M4 bonding pad does not comprise a single metal layer because at that level, other areas such as portions of structure 430 and the area immediately below structure 411 level with bonding 410 share the same layer.

Applicants' invention is innovative because Applicants teach a bonding pad structure, including methods thereof, that consumes the *entire* layer (i.e., the entire length and level of a single layer across an entire substrate area). Zhao does disclose an insulator 432 (see Fig. 4), which consumes an entire level or layer. If this were a bonding pad, then Zhao would clearly disclose the same type of single metal layer bonding pad taught by Applicants' invention. Insulator 432, however, is not a bonding pad although it does consume the entire length of the overall support structure 400 (minus substrate 450). As Applicants point out in paragraph 007 of their specification, "current wiring pad design rules do not permit only one layer for wiring bond configurations, due to wire bonding stress-reduced fractures that can result during packaging.

III. Conclusion

Applicants have clarified the structural distinctions of the present invention by amending the Claims. No new subject matter has been introduced as a result of this amendment. Applicant respectfully submits that the foregoing discussion does not present new issues for consideration and that no new search is necessitated. Accordingly, Applicant respectfully requests reconsideration of the application, withdrawal of rejections under 35 U.S.C. §§ 102 and 103, and further examination of the present application.

Applicants believe they have demonstrated that their disclosed and claimed invention is novel and non-obvious relative to the prior art. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned representative to conduct an interview in an effort to expedite prosecution in connection with the present application.

Respectfully submitted,

By: 

Randy Tung
Registration No. 31,311
Attorney for Applicants